***** CONFIDENTIAL *****
***** PREDECISIONAL DOCUMENT *****

SUMMARY SCORESHEET FOR COMPUTING PROJECTED HRS SCORE

SITE NAME: NASCO

CITY: San Diego **COUNTY:** San Diego

EPA ID #: CAD 009158932 **EVALUATOR:** Gary Yao

PROGRAM ACCOUNT #: **DATE:** Nov 8, 1993

LAT/LONG: 32° 41' 29.0" N/117° 07' 57.0" W **T/R/S:** N/A

THIS SCORESHEET IS FOR A **PA:** X **SI:**

OTHER:

RCRA STATUS (check all that apply):

- X Generator
- Small Quantity Generator
- Transporter
- TSDF
- Not Listed in RCRA Database as of (Date of Printout)

STATE SUPERFUND STATUS:

- DTSC Annual Work Plan (formerly BEP) (Date)
- WQARF (Date):
- X No State Superfund Status (Date): 1/12/93

	S Pathway	S^2 Pathway
Groundwater Migration Pathway Score (Sgw)	*	*
Surface Water Migration Pathway Score (Ssw)	43.73	1912.31
Soil Exposure Pathway Score (Ss)	*	*
Air Migration Pathway Score (Sa)	*	*
$(S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_{am}^2)$		1912.31
$(S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_{am}^2) / 4$		478.08
$\sqrt{(S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_{am}^2) / 4}$		**21.87**

* Pathway evaluated, but not assigned a score (explain):

The Groundwater Migration Pathway was evaluated but not assigned a score because the nearest drinking water wells are located approximately 2.5 miles east of the NASCO site. These wells only contribute 10 percent of the water for the Sweetwater Authority water distribution system.

The Soil Exposure and Air Migration Pathways were evaluated but not assigned scores since the site is completely paved and fenced. There are no residences, schools, or daycare centers on or within 200 feet of the site.

SURFACE WATER MIGRATION PATHWAY SCORESHEET
(OVERLAND/FLOOD MIGRATION COMPONENT)

DRINKING WATER THREAT

Likelihood of Release	Maximum Value	Score	Rationale	Data Quality
1. Observed Release	550	550	1	H
2. Potential to Release by Overland Flow				
2a. Containment	10			
2b. Runoff	25			
2c. Distance to Surface Water Value	25			
2d. Potential to Release: Overland Flow [lines 2a x (2b + 2c)]	500	0		
3. Potential to Release by Flood				
3a. Containment	10			
3b. Flood Frequency	50			
3c. Potential to Release by Flood (lines 3a x 3b)	500	0		
4. Overall Potential to Release (lines 2d+3c, subject to a maximum of 500)	500	0		
5. Likelihood of Release (line 1 or 4)	550	550		
Waste Characteristics				
6. Toxicity/Persistence	(a)	10,000	2	H
7. Hazardous Waste Quantity	(a)	100	3	E
8. Waste Characteristics (lines 6 x 7, then use Table 2-7)	100	32		
Targets				
9. Nearest Intake Value	50	0	4	H
10. Population				
10a. Level I Concentrations	(b,c)	0	4	H
10b. Level II Concentrations	(b,c)	0	4	H
10c. Potential Contamination	(b,c)	0.0	4	H
10d. Population (lines 10a+10b+10c)	(b)	0.0		
11. Resources	5	5	5	H
12. Targets (lines 9+10d+11)	(b)	5.0		
Drinking Water Threat Score				
13. Drinking Water Threat [(lines 5 x 8 x 12) / 82,500, subject to a Maximum of 100]	100	1.07		

SURFACE WATER MIGRATION PATHWAY SCORESHEET
(OVERLAND/FLOOD MIGRATION COMPONENT)

HUMAN FOOD CHAIN THREAT

Likelihood of Release	Maximum Value	Score	Rationale	Data Quality
14. Likelihood of Release (same as line 5)	550	550		
Waste Characteristics				
15. Toxicity/Persistence/Bioaccumulation	(a)	500,000,000	6	H
16. Hazardous Waste Quantity	(a)	100	3	E
17. Waste Characteristics (Toxicity/Persistence x Hazardous Waste Quantity x Bioaccumulation, then assign a value from Table 2-7)	1,000	320		
Targets				
18. Food Chain Individual	50	20.00	7	H
19. Population				
19a. Level I Concentrations	(b,c)	0.00	7	H
19b. Level II Concentrations	(b,c)	0.00	7	H
19c. Potential Human Food Chain Contamination	(b,c)	0.000310	8 & Worksheet	H
19d. Population (lines 19a+19b+19c)	(b)	0.000310		
20. Targets (lines 18+19d)	(b)	20.000310		
Human Food Chain Threat Score				
21. Human Food Chain Threat [(lines 14 x 17 x 20) / 82,500, subject to a Maximum of 100]	100	42.67		

SURFACE WATER MIGRATION PATHWAY SCORESHEET (OVERLAND/FLOOD MIGRATION COMPONENT)

ENVIRONMENTAL THREAT

Likelihood of Release	Maximum Value	Score	Rationale	Data Quality
22. Likelihood of Release (from line 5)	550	550		
Waste Characteristics				
23. Ecotoxicity/Persistence/Bioaccumulation	(a)	500,000,000	9	H
24. Hazardous Waste Quantity	(a)	100	3	E
25. Waste Characteristics (Ecosystem Toxicity/Persistence x Hazardous Waste Quantity x Bioaccumulation, then assign a value from Table 2-7)	1,000	320		
Targets				
26. Sensitive Environments				
26a. Level I Concentrations	(b,c)	0	10	H
26b. Level II Concentrations	(b,c)	0	10	H
26c. Potential Contamination	(b,c)	0.00053	10 & Worksheet	H
26d. Sensitive Environments (lines 26a+26b+26c)	(d)	0.00053		
27. Targets (line 26d)	(b)	0.00053		
Environmental Threat Score				
28. Environmental Threat Score ([lines 22 x 25 x 27]/82,500, subject to a maximum of 60)	60	0.00		

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED

29. Watershed Score	100	43.74

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE

30. Overland/Flood Migration Component Score (Sof) (Highest score from line 29 for all watersheds evaluated, Subject to a maximum of 100)	43.73

(a) Maximum value applies to waste characteristics category.

(b) Maximum value not applicable.

(c) Value computed on attached calculation sheet.

(d) No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to maximum of 60.

SURFACE WATER PATHWAY
(OVERLAND/FLOOD MIGRATION COMPONENT)

DRINKING WATER TARGET CALCULATIONS

ACTUAL CONTAMINATION

Intake	Contaminant Detected	Contaminant Concentration (Note Units)	Benchmark (Note Units)	Level Multiplier* (A)	Apportioned Population Intake Serves (B)	Actual Contamination Factor (A x B)

SUM LEVEL I CONCENTRATIONS	0
SUM LEVEL II CONCENTRATIONS	0

*** Level Multipliers**

Level I = 10

Level II = 1

POTENTIAL CONTAMINATION

Type of Surface Water Body	Apportioned Population Intake Serves	Dilution-Weighted Population Values (Table 4-14)
< 10 cfs		
10 to100 cfs		
>100 to 1,000 cfs		
>1,000 to 10,000 cfs		
>10,000 to 100,000 cfs		
Shallow Ocean Zone (depth < 20 feet)		
Moderate Ocean Zone (depth 20 to 200 feet)		
Deep Ocean Zone (depth > 200 feet)		
3 Mile Mixing Zone in Quiet Flowing River		

SUM:	0
DRINKING WATER POTENTIAL CONTAMINATION: SUM/10	0.0

SURFACE WATER PATHWAY
(OVERLAND/FLOOD MIGRATION COMPONENT)

HUMAN FOOD CHAIN TARGET CALCULATIONS

ACTUAL CONTAMINATION

Fishery	Contaminant Detected	Contaminant Concentration (Note Units)	Benchmark (Note Units)	Level Multiplier* (A)	Assigned Population Value (Table 4-18) (B)	Actual Contamination Factor (A x B)

SUM LEVEL I CONCENTRATIONS	0.00
SUM LEVEL II CONCENTRATIONS	0.00

*** Level Multipliers**
Level I = 10
Level II = 1

POTENTIAL CONTAMINATION

Fishery	Production (lb/yr)	Assigned Population Value (Table 4-18) (A)	Average Stream Flow at Fishery (cfs)	Dilution Weighting Factor (Table 4-13) (DW)	Potential Contamination Factor (A x DW)
San Diego Bay	1 million	310		0.00001	0.00310

SUM (A x DW)	0.00310
HUMAN FOOD CHAIN POTENTIAL CONTAMINATION: SUM/10	0.000310

SURFACE WATER PATHWAY
(OVERLAND/FLOOD MIGRATION COMPONENT)

ENVIRONMENTAL TARGET CALCULATIONS

ACTUAL CONTAMINATION

Sensitive Environment or Wetland Length (Miles)	Contaminant Detected	Contaminant Concentration (Note Units)	Benchmark (Note Units)	(A) Level Multiplier* (A)	Assigned Value (Table 4-23 and/or 4-24) (B)	Actual Contamination Factor (A x B)
					SUM LEVEL I CONCENTRATIONS	0
					SUM LEVEL II CONCENTRATIONS	0

*** Level Multipliers**

Level I = 10

Level II = 1

POTENTIAL CONTAMINATION

Sensitive Environment or Wetland Length (Miles)	Assigned Value (Table 4-23 and/or 4-24) (A)	Average Stream Flow (cfs)	Dilution Weighting Factor (Table 4-13) (DW)	Actual Contamination Factor (AxDW)
California brown pelican	75		0.00001	0.00075
California least tern	75		0.00001	0.00075
Salt marsh bird's beak	75		0.00001	0.00075
Light-footed clapper rail	75		0.00001	0.00075
California black rail	75		0.00001	0.00075
Beldings savannah sparrow	75		0.00001	0.00075
Peregrine falcon	75		0.00001	0.00075
			SUM (A x DW)	0.0053
			SENSITIVE ENVIRONMENTS POTENTIAL CONTAMINATION: SUM /10	0.00053

NASCO
(aka: National Steel and Shipbuilding Company or NASSCO)

HRS REFERENCES/RATIONALE

Surface Water Migration Pathway

Drinking Water Threat

1. An observed release of hazardous substances from the NASCO site to San Diego Bay can be established. For example, on June 25, 1987, the San Diego County Health Department observed a large amount of paint in San Diego Bay near NASCO's floating dry dock. On March 22, 1993, spent copper slag was spilled into the bay from the floating dry dock. The estimated amount of copper slag released into San Diego Bay was less than 250 pounds. A score of **550** is assigned for the Likelihood of Release.

   Sources: California Regional Water Quality Control Board - San Diego Region, Complaint/Discharge Investigation Report Form, June 25, 1987.

   Martin, John R., National Steel and Shipbuilding Company, Letter to Gloria R. Fulton, California Regional Water Quality Control Board - San Diego Region, March 25, 1993.

2. On March 31, 1989, the California Regional Water Quality Control Board (RWQCB) - San Diego Region collected samples of copper slag wastes and wastewater being discharged into San Diego Bay from NASCO's floating dry dock. Analytical results of the samples showed detectable concentrations of arsenic, chromium, copper, lead, mercury, nickel, silver, and zinc. According to the Superfund Chemical Data Matrix (SCDM), mercury has a toxicity value of 10,000 and a persistence (river) value of 1. A score of **10,000** is assigned.

   Source: Delaney, Ladin H., California Regional Water Quality Control Board - San Diego Region, Letter to Richard Vortmann, National Steel and Shipbuilding Company, July 5, 1989.

3. In 1991, NASCO generated approximately 2,330 tons (or 4,660,000 pounds) of abrasive sandblast wastes (copper slag and steel grit), 14,300 gallons (or 143,000 pounds) of waste paint, and 23,153 gallons (231,530 pounds) of waste oil. Therefore, an average of 1,165,000 pounds of abrasive sandblast wastes, 35,750 pounds of waste paint, and 57,883 pounds of waste oil are generated by NASCO every quarter.

   A sump was located near Building 6 (Electric Shop Repair) and NASCO's electroplating shop. This unlined sump was approximately 32 inches in diameter and ten feet deep.

   As part of its National Pollutant Discharge Elimination System (NPDES) permit, NASCO collects onsite and reference sediment samples every 6 months. Sediment samples collected during the latest (June 1993) sampling round from 18 onsite

locations contained elevated concentrations of inorganic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls. NASCO occupies 47 acres of water in San Diego Bay.

Name of Source	Quantity of Hazardous Wastes	Tier	Hazardous Waste Quantity Value
Abrasive sandblast wastes	1,165,000 pounds	B	233.00
Waste paint	35,750 pounds	B	7.15
Waste oil	57,883 pounds	B	11.58
Sump	55.85 cubic feet = 2.07 cubic yards	C	0.83
Contaminated sediments	47 acres = 2,047,320 square feet	D	60.22

Total hazardous waste quantity = 312.78. A value of **100** is assigned.

Sources: Jayne, Deborah S., California Regional Water Quality Control Board - San Diego Region, Staff Report on Petitions to Downgrade Threat to Water Quality and Complexity Ratings for Campbell Industries, Southwest Marine, and National Steel and Shipbuilding Company Shipyards, December 14, 1992, Revised February 1, 1993.

Woodward-Clyde Consultants, Soil Sampling and Excavation Report - Building No. 6 Sump, Harbor Drive and 28th Street, San Diego, California, No date.

Ecosystems Management Associates, Inc., National Steel and Shipbuilding Company - NPDES Permit, Marine Sediment Monitoring and Reporting, Second Semi-Annual Report, Volume 2, June 1993.

4. San Diego Bay is not used as a source of drinking water. A value of **0** is assigned.

   Source: Eyre, Larry, Telephone conversation recorded on Contact Report by Surjit Dhillon, Bechtel Environmental, Inc., April 23, 1993.

5. San Diego Bay is a major water recreation area. A score of **5** is assigned for the Resource Factor Value.

Human Food Chain Threat

6. According to SCDM, mercury has a toxicity value of 10,000, a persistence (river) value of 1, and a bioaccumulation (food chain, salt water) value of 50,000. A value of **5×10^8** is assigned.

7. Sediment samples collected within the NASCO site contained concentrations of copper, zinc, and tributyltin (TBT) that are more than three times the average concentrations detected at three offsite reference stations in San Diego Bay. Since NASCO has used or uses these hazardous substances on site, the contaminated sediments within the site can therefore be attributable to NASCO's shipbuilding and repair operations. Contaminated sediments off site, however, cannot be attributable to the site because of the high dilution and strong tidal/wave influence of the bay.

Since the NASCO site is fenced and inaccessible to the public, no fishing occurs within the site. No targets are subject to Level I or II concentrations.

There is an observed release of arsenic, chromium, copper, lead, mercury, nickel, and zinc from the NASCO site to San Diego Bay. All of these inorganic compounds have a bioaccumulation (food chain, salt water) value of 500 or greater. A score of **20** is assigned.

Sources: Jayne, Deborah S., California Regional Water Quality Control Board - San Diego Region, Staff Report on Petitions to Downgrade Threat to Water Quality and Complexity Ratings for Campbell Industries, Southwest Marine, and National Steel and Shipbuilding Company Shipyards, December 14, 1992, Revised February 1, 1993.

Yao, Gary, Bechtel Environmental, Inc., Site Reconnaissance Interview and Observations Report, October 15, 1993.

8. An average of 1 million pounds of fish are caught annually in the San Diego area. The bay has a dilution weight of 1×10^{-5} (moderate depth ocean zone from 20 to 200 feet in depth). Please see Human Food Chain Target Calculation Worksheet.

Source: Reed, Bob, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.

Environmental Threat

9. According to SCDM, mercury has an ecotoxicity (salt water) value of 10,000, a persistence (river) value of 1, and a bioaccumulation (environmental, salt water) value of 50,000. A value of **5×10^8** is assigned.

10. As stated in Rationale Number 7 above, no targets are subject to Level I or II concentrations. The following state and/or federally-listed threatened and endangered species are present in San Diego Bay: California brown pelican, California least tern, salt-marsh bird's beak, light-footed clapper rail, California black rail, beldings savannah sparrow, and peregrine falcon. Please see Environmental Target Calculation Worksheet.

Source: Dillingham, Tim, California Department of Fish and Game, Telephone conversation recorded on Contact Report by Sharron L. Reackhof, Bechtel Environmental, Inc., April 13, 1993.